REMARKS

Reconsideration by the Examiner is respectfully requested in light of the foregoing amendments and the following comments.

Claim 1 has been amended to specify that both of the polymer components contain polypropylene. Minor amendments have also been made to some of the other claims for consistency of terminology.

The claims stand rejected under 35 U.S.C. 103(a) as being obvious over Hills US 5,162,074 in view of Geus US 5,814,349 and further in view of Mleziva US 6,410,138 and Handbook of Fiber Chemistry, 3rd edition. It is noted that the Handbook of Fiber Chemistry has a 2006 copyright date, which is after applicant's priority date.

According to the rejection, it would have been obvious to add the attenuation process and air permeable belt process of Geus to the process of Hills, and it would have been obvious to use reclaim polypropylene as described by Mleziva. The rejection further asserts that it would have also been obvious to use reclaim polypropylene and virgin polypropylene. Applicant respectfully traverses this rejection and requests reconsideration and withdrawal by the Examiner.

Applicant has discovered that by following a prescribed series of process steps, as defined in the claims of record, it is possible to produce a spunbond nonwoven fabric at the high speeds which are necessary for practical and economical commercial production, and wherein the nonwoven fabric contains reclaimed polypropylene at high levels not previously attainable. In particular, as defined in the claims, the reclaimed polypropylene is present in the core in an amount up to 100% by weight, with the total amount of reclaimed polypropylene in the filaments is 25% or higher. It is not obvious or evident that reclaimed polypropylene can be successfully incorporated into a spunbond process at this level, and it is not obvious how to achieve the incorporation of such a high level of reclaim in a spunbond process.

As defined in the claims of record, applicant's process entails a specific sequence of steps. Referring for example to claim 1, the steps involve the following:

separately melting two or more polypropylene polymer components (in extruders 11, 12), at least one component including reclaimed polypropylene recovered from

previously spun polypropylene fiber or webs comprised of previously spun polypropylene fiber;

separately directing the two or more molten polymer components through a distribution plate (24) configured so that the separate molten polymer components combine at a multiplicity of spinnerette orifices to form bicomponent filaments containing the two or more polymer components, the polymer components being arranged in a sheath-core cross-sectional configuration, with the polymer component containing reclaimed polypropylene being present in the core, and the reclaimed polypropylene being in an amount up to 100% by weight, and with the total amount of reclaimed polypropylene in the filaments being 25% by weight or greater;

extruding the multicomponent filaments from the spinnerette orifices into a quench chamber (30);

directing quench air from a first independently controllable blower (31) into the quench chamber and into contact with the filaments to cool and solidify the filaments;

directing the filaments and the quench air into and through a filament attenuator (32) and pneumatically attenuating and stretching the filaments;

directing the filaments from the attenuator (32) into and through a filament depositing unit (34);

depositing the filaments from the depositing unit (34)randomly upon a moving continuous air-permeable belt (40) to form a nonwoven web of substantially continuous filaments;

applying suction from a second independently controllable blower (42) beneath the air-permeable belt so as to draw air through the depositing unit (34) and through the air-permeable belt (40); and

directing the web through a bonder (44) and bonding the filaments to convert the web into a coherent nonwoven fabric.

Regarding the combination of the teachings from Hills and Geus, applicant submits that in the absence of applicant's own teachings, it would not have been obvious from the prior art references to select from Geus the specific sequence of steps specified above and to apply them to the Hills process. In particular, these process steps involve

directing quench air from a first independently controllable blower, pneumatically attenuating and stretching the fiaments, directing the filaments through a filament depositing unit, depositing the filaments upon a moving air permeable belt, applying suction from a second independently controllable blower below the air permeable belt, and directing the filaments to a bonder and bonding the filaments. There are many different kinds of spunbond processes known to persons of ordinary skill in the art. To illustrate this point, applicant encloses pages from a Nowovens Training Course given by the EDANA, the European Disposables and Nonwovens Association and by INDA, the Association of the Nonwoven Fabrics Industry in which various web forming technologies are described. The text explains that the spunbond process starts with an extruder feeding molten polymer to a spinneret which converts the polymer into a series of molten polymer filaments, and that "from this point onwards there are a whole range of alternative systems." The text explains a number of variations in how the filaments can be drawn and distributed on a collector belt. For example, the filaments can be drawn either mechanically by draw rolls or pneumatically. A number of alternative airflow systems have been developed for pneumatically drawing and attenuating the filaments as illustrated in Fig. 5.4. Examples of different commercially available spunbond systems include the Freudenberg "Lutravil" process, DuPont's development of the Reemay and Typar spunbond processes, and the "Docan process" made available by Lurgi Kohle and Mineralotecknick GmbH. Indeed, there are even variations and modifications of the basic Lurgi-Docan process. Other spunbond technologies include the Corovin "Multidenier" and Fiberweb "S-Tex" technologies, the Zimmer NST system illustrated in Figures 5.12, 5.13, 5.14 and 5.15, several variants of the Reifenhauser "Reicofil" spunbond system, spunbond systems from Kobe Steel and from Nippon Kodoshi Corporation as illustrated in Figures 5.18 and 5.19 and the Ason Engineering Inc. spunbond system. From Table 5.2 it will be seen that there are many process variables that must be controlled in a spunbond system. From this evidence, it should be apparent that the person of ordinary skill in the art is faced with a myriad of choices from the available spunbond technologies. Consequently, in the absence of some guidance or direction, a person of ordinary skill in the art would not be motivated to select the

specific sequence of steps as claimed by applicant and to apply these to the process of Hills.

Furthermore, the teachings of Mleziva do not lead to the invention as claimed. In particular, nothing in Mleziva would incite a person of ordinary skill in the art to use polypropylene in both components of sheath-core bicomponent filaments and to locate reclaimed polypropylene in the core of the sheath core bicomponent filament and to provide it in the core at up to 100% by weight, with the total amount of reclaimed polypropylene in the filaments being at a level of 25% by weight or greater.

Mleziva is directed to the manufacture of crimped multicomponent filaments and to a spunbond web made from these filaments. The multicomponent filaments are made from two different polymer components A and B. According to the Mleziva teachings at column 7, lines 2-4, "Polymer component A and polymer component B must be selected so that the resulting bicomponent filament is capable of developing a natural helical crimp." Preferably, polymer component A has a faster solidification rate, and in one embodiment it has a higher melting temperature than polymer component B. In particular, Mleziva uses polypropylene as polymer component A and polymer component B is polyethylene or a random copolymer of propylene and ethylene. Mleziva also teaches incorporating a crimp enhancement additive, such as a butylene-propylene random copolymer, into polymer component B.

Applying the Mleziva teachings to the modified Hills/Geus spunbond process would require having the two components of the bicomponent filaments formed from two different polymer compositions, e.g. polypropylene in one component and polyethylene or an ethylene copolymer in the other component. The Mleziva teachings would not lead to the combination claimed by applicant in claim 1, where both the sheath and core components are polypropylene, or to the combination more specifically defined in independent claims 7, 10, 29 and 30, where the sheath component comprises virgin polypropylene and the core component comprises reclaimed polypropylene.

In the only disclosure of a sheath-core bicomponent filament (FIG. 2B and the accompanying text), the Mleziva reference describes an eccentric sheath core filament containing a core component A which is preferably polypropylene and a sheath

component B which is preferably polyethylene and contains the crimp enhancing additive. At column 8, lines 6 to 22, Mleziva et al. mention that reclaimed and recycled polymers can be used. However, Mleziva et al. clearly teach that the recycle polymer is added to the polymer component B that forms the sheath component. Specifically, the patent states that the reclaim polymer can be added to this component in an amount up to about 20 percent by weight.

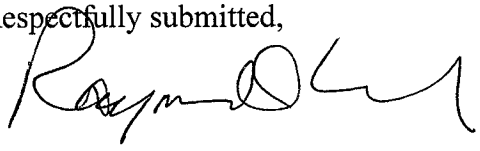
Applicants' invention as defined in the claims of record differs over this reference in a number of significant and fundamental respects. Each of the independent claims of record clearly specifies a process in which the polymer component containing reclaimed polypropylene is present in the core of the sheath core bicomponent filament. In the Mleziva reference, the reclaim polymer is present in the sheath. It would not have been obvious to modify the filaments of the cited reference by putting the reclaim polymer in the core instead of the sheath. The reference clearly requires the presence of a crimp enhancement additive in the sheath component in order to alter the solidification rate relative to the core component in order that the multi-component filaments will have latent crimpability. The crimp enhancement additive also functions as a polymer compatibilizer. Consequently, the presence of the crimp enhancement additive in the sheath component allows for blending in reclaim polymer with the polymer component B that forms the sheath. Therefore, persons of ordinary skill in the art following the teachings of the cited reference would have no reason or motivation to change the location where the reclaimed polypropylene is placed. Applicants' invention is based upon the recognition that reclaimed polypropylene can be incorporated into the core component of a sheath core bicomponent filament, with conventional or regular polypropylene resin being supplied to the sheath. Consequently, the reclaim polypropylene is "buried" within the filament.

The claims also specify that the reclaim polymer comprises at least 25 percent by weight of the filament. This is outside of the teachings of Mleziva. The reference contains a clear and explicit teaching that reclaim can be added "in an amount up to about 20% by weight." Applicant submits that the person of ordinary skill in the art would have no reason to ignore this clear and explicit teaching by Mleziva.

For the reasons noted, even if there were some basis to combine the teachings of Mleziva with those of Hills and Geus, one still does not arrive at the combination of process steps defined in the claims of record. Accordingly favorable reconsideration by the Examiner and withdrawal of the rejection are requested.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,



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